

## Edmund M. Hart

Department of Biology  
University of Vermont  
120A Marsh Life Science  
Edmund.hart@uvm.edu  
Burlington, VT 05405  
Office: 802.656.0451

28 Bradley St.  
Burlington, VT 05401

Cell: 802.999.3330

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### Education

*University of Vermont*, Burlington, VT 2005 – present

PhD. in Biology, concentration in community ecology, advisor Dr. Nicholas Gotelli

*University of Massachusetts*, Amherst, MA 1997 - 2001

B.S. in Biology, concentration in ecology and evolution, *Cum Laude*

B.A. in History, *Cum Laude*

### Research Experience

*Doctoral Research*: Department of Biology, University of Vermont 2005- present

- Conduct manipulative field experiments to understand the impact of climate change on community-level processes in aquatic mesocosms
- Build statistical and genetic algorithm models based on empirically derived parameters to predict community shifts with climate change.
- Mentor undergraduate assistants in both field and laboratory work

*Ecological Data Analyst*, USDA Forest Service Research Station, Burlington, VT May 2006 – August 2007

- Analyze spatial modeling data in ARCGIS and create maps of model data for presentations and conferences
- Maintain large databases in Access and perform data manipulation by programming data handling applications in Visuas Basic
- Perform statistical analysis on field experiments from Hubbard Brook Research Forest

*Assistant Biologist*, National Park Service Delaware Water Gap, Milford, PA, February 2004 – December 2004

- Collect and process water samples for two water quality projects on the Delaware river and its tributaries
- Oversee water quality lab and maintain laboratory and field equipment to quality assurance standards
- Monitor breeding bald eagle populations throughout the entire park
- Analyze and manage water quality data collected and write reports summarizing findings

*Field Technician*, U.S. Geological Survey Pacific Island Ecosystem Field Station, Volcano, HI, Fall 2003

- Collected and field identified mosquitoes throughout Hawaiian rainforests as part of a large scale avian disease study
- Caretaker of an aviary containing rare Hawaiian birds for mosquito experiments

*Field Technician*, Colorado Natural Heritage Program, Fort Collins, CO, Summer 2003

- Captured, tagged and collected data on endangered high elevation boreal toad populations.
- Surveyed remote areas in the Rocky Mountains for possible toad populations, navigating with compass, GPS, and map.

*Research Assistant*, University of Minnesota, Bethel, MN, Summer 2001

- Designed and implemented an experiment on Blue Jay vocalizations
- Collected and analyzed Blue Jay vocalization data
- Created Powerpoint presentation and presented experiment findings at Cedar Creek Summer Research Symposium

## **Grants and Awards**

2009-2010 Graduate Research Assistantship in Complex Systems, Vermont EPSCoR

2009-2010 Doctoral Dissertation Improvement Grant, National Science Foundation (\$13,500)

2006 Travel grant, Graduate College, University of Vermont (\$400)

2005 Lake Champlain Research Consortium Student Research Grant (\$500)

2001 Research Experience for Undergraduates Fellowship, National Science Foundation

## **Publications**

Hart, E. M., N.J. Gotelli (in submission) “The effects of climate change on density-dependent population dynamics of aquatic invertebrates” Ecology submission # 09-0547.

Collins, A. R., E.M. Hart, J. Molofsky, (in submission) “Quantifying the extent of frequency dependence: An experimental test using genotypes of an invasive grass”

## **Presentations**

2008 “The impact of variable precipitation on vernal ponds: Community structure, population size, and density dependence” Presented at Ecological Society of America Annual Meeting, Contributed Oral Sessions.

2008 “The impact of variable precipitation on vernal ponds: Community structure, population size, and density dependence” Presented at The Northeast Natural History Conference X

2007 “Macroinvertebrate Communities in Ephemeral Ponds: Effects of Competition, Landscape, and Hydroperiod on Species Richness” Presented at Ecological Society of America Annual Meeting, Contributed Oral Sessions.

2001 “Quantitative analysis of blue jay vocalizations” Presented at the annual Cedar Creek Research Seminar.

2000 “Population studies of northern diamondback terrapins (*Malaclemys terrapin terrapin*) on the Cape May Peninsula” Presented at the Annual Workshop on the Ecology, Status, and Conservation of Diamondback Terrapins.

## **Reviews**

**Journal Reviews:** Oikos, Austral Ecology, Journal of Ecology, Global Ecology and Biogeography.

## **University Service**

*EPSCoR Undergraduate mentor* University of Vermont 2008 – Present

- Mentor to undergraduates and highschool students in the Vermont EPSCoR Streams Project

*Graduate Student Senate Vice-President* University of Vermont 2006 – Present

- Serve on the university committee on graduate education, scholarship and research
- Chair and organize monthly senate meetings addressing needs and concerns of graduate community
- Organize annual university wide graduate research conference

*Graduate Student Senate Senator* University of Vermont 2005 – 2006

- Attend monthly senate meetings addressing needs and concerns of graduate community
- Serve on outreach committee to develop graduate student community

## **Teaching Experience**

*Graduate Teaching Fellow* University of Vermont 2005 – Present

- Teach and develop lectures for laboratories in ecology and evolution and introductory biology
- Lead field trips and help with the development of insect collections for advanced field zoology

*Guest Lecturer* University of Vermont 2006 – 2007

- Presented lecture on aquatic entomology to field zoology class
- Gave talk and lead discussion on grant writing success for undergraduate evolution class

*Guest Presenter* Leahy Echo Center for the Environment 2006

- Lead environmental discovery session on aquatic insects during “Mud Fest 2006” for children and parents

*Environmental Educator* Massachusetts Dept. of Forests and Parks 2004

- Develop and teach weekly environmental education classes for children and parents on Boston Harbor Islands State Park